□yWhat is claimed is□z

1. A method for manufacturing compacted materials with a plate form in a process for manufactuirng molten iron by using raw coals and fine iron ores in an apparatus for manufacturing molten iron including multi-staged fluidized-bed reduction reactors for reducing the fine ores; and a packed type melter-gasifier for manufacturing molten iron by using the fine reduced irons comprising:

a step of arranging grooves of the left and right press rolls with a suitable gap therebetween to be offset with each other, a surface of the left and right press rolls comprising flat portions and the grooves; and

a step of manufacturing compacted materials with a plate form by charging and pressing mixture of the hot fine reduced irons and calcined additives or only hot fine reduced irons discharged from a final reduction reactor of the fluidized-bed reduction reactors into a gap formed between the left and right press rolls while rotating them along a direction opposing to each other, thereby manufacturing the compacted materials with a plate form.

2. The method of Claim 1, wherein the mixture of the hot fine reduced irons and calcined additives are discahrged from the final reduction reactor of the fluidized-bed reduction reactors by charging fine iron ores with additives into the multi-staged fluidized-bed reduction reactors, and

wherein the mixture of the hot fine reduced irons and calcined additives are pressed.

3. The method of Claim 1, wherein an amount of the calcined additives in the mixture of the hot fine reduced irons and calcined additives is in a range from 3wt% to 20wt% of the total amount of the compacted materials.

4. The method of any Claim of Claim 1 to Claim 3, wherein each flat portion of a surface of the left and right press rolls is formed to have a length of a range from 1mm to 5mm along a direction parallel to a rotating direction of the press rolls, and

wherein a depth of the groove of the surface of the press roll is in a range from 3mm to 15mm and a distance between the grooves is in a range from 20mm to 50mm.

5. The method of Claim 4, wherein the offset distance between the left and right press rolls is in a range from 50% to 70% of the distance between the grooves.

6. The method of any Claim of Claim 1 to Claim 3, wherein a density of the compacted materials is set to be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

7. The method of Claim 4, wherein a density of the compacted materials is set to be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

8. The method of Claim 5, wherein a density of the compacted materials is set to be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

9. The method of any Claim of Claim 1 to Claim 3, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

10. The method of Claim 4, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

11. The method of any Claim of Claim 5, 7 and 8, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

12. The method of Claim 6, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

13. A method for manufacturing compacted materials for being used in a melter-gasifier in a process for manufactuirng molten iron by using raw coals and fine iron ores in an apparatus for manufacturing molten iron including multi-staged fluidized-bed reduction reactors for reducing the fine ores; and a packed type melter-gasifier for manufacturing molten iron by using the fine reduced irons comprising:

a step of arranging grooves of the left and right press rolls with a suitable gap therebetween to be offset with each other, a surface of the left and right press rolls comprising flat portions and the grooves;

a step of manufacturing compacted materials with a plate form by charging and pressing mixture of the hot fine reduced irons and calcined additives or only hot fine reduced irons discharged from a final reduction reactor of the fluidized-bed reduction reactors into a gap formed between the left and right press rolls while rotating them along a direction opposing to each other, thereby manufacturing the compacted materials with a plate form; and

a step of crushing the manufactured compacted materials in order to have a shape and mechanical property which are suitable for being charged into the melter-gasifier.

14. The method of Claim 13, wherein the mixture of the hot fine reduced irons and calcined additives are discahrged from the final reduction reactor of the fluidized-bed reduction reactors by charging fine iron ores with additives into the multi-staged fluidized-bed reduction reactors, and

wherein the mixture of the hot fine reduced irons and calcined additives are pressed.

15. The method of Claim 14, wherein an amount of the calcined additives in the mixture of the hot fine reduced irons and calcined additives is in a range from 3wt% to 20wt% of the total amount of the compacted materials.

16. The method of any Claim of Claim 13 to Claim 15, wherein each flat portion of a surface of the left and right press rolls is formed to have a length of a range from 1mm to 5mm along a direction parallel to a rotating direction of the press rolls, and

wherein the a depth of the groove of the surface of the press roll is in a range from 3mm to 15mm and a distance between the grooves is in a range from 20mm to 50mm.

17. The method of Claim 16, wherein the offset distance between the left and right press rolls is in a range from 50% to 70% of the distance between the grooves.

18. The method of any Claim of Claim 13 to Claim 15, wherein a density of the compacted materials is set to be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

19. The method of Claim 16, wherein a density of the compacted materials is set to

be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

20. The method of Claim 17, wherein a density of the compacted materials is set to be in a range from 3.5ton/m^3 to 4.2ton/m^3 and thickness thereof is set to be in a range from 3mm to 30mm under a roll pressing condition.

21. The method of any Claim of Claim 13 to Claim 15, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

22. The method of Claim 16, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

23. The method of any Claim of Claim 17, 19 and 20, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

24. The method of Claim 18, wherein a pressing temperature is set to be in a range from 400¡æ to 800¡æ and a pressing pressure is set to be in a range from 140bar to 250bar during the roll pressing.

25. The method of any Claim of Claim 13, 14, 15, 17, 19, 20, 22 and 24, wherein the manufactured compacted materials have an irregular shape with a density of a range from 3.5ton/m^3 to 4.2ton/m^3 and a size not more than 50mm.

26. The method of Claim 16, wherein the manufactured compacted materials have an irregular shape with a density of a range from 3.5ton/m^3 to 4.2ton/m^3 and a size not more than 50mm.

27. The method of Claim 18, wherein the manufactured compacted materials have an irregular shape with a density of a range from 3.5ton/m^3 to 4.2ton/m^3 and a size not more than 50mm.

28. The method of Claim 22, wherein the manufactured compacted materials have

an irregular shape with a density of a range from 3.5ton/m^3 to 4.2ton/m^3 and a size not more than 50mm.

29. The method of Claim 23, wherein the manufactured compacted materials have an irregular shape with a density of a range from 3.5ton/m^3 to 4.2ton/m^3 and a size not more than 50mm.

30. The method of Claim 25, wherein a size distribution of the manufactured compacted materials for being used in the melter-gasifier is not more than 20% with a size of a range from 30mm to 50mm; at a range from 10% to 40% with a size of a range from 30mm to 50mm; at a range from 10% to 40% with a size of a range from 10mm to 20mm; at a range from 5% to 30% with a size of a range from 1mm to 10mm; and at a range not more than 10% with a size of not more than 1mm.

31. The method of any Claim of Claim 26 to Claim 30, wherein a size distribution of the manufactured compacted materials for being used in the melter-gasifier is not more than 20% with a size of a range from 30mm to 50mm; at a range from 10% to 40% with a size of a range from 30mm to 50mm; at a range from 10% to 40% with a size of a range from 10mm to 20mm; at a range from 5% to 30% with a size of a range from 1mm to 10mm; and at a range not more than 10% with a size of not more than 1mm.